

CLAIMS

1. A connector comprising:

a tubular male joint member;

5 a liquid passage portion having a liquid passage space defined therein in fluid communication with an interior of said male joint member;

a first female joint port and a second female joint port which are capable of receiving a tube;

10 a first valve body having a head and a neck interconnecting said head and said liquid passage portion, said neck being thinner than said head, said first valve body having a slit extending from a top surface of said head to said liquid passage space, said first valve body being made of an elastic material; and

15 a second valve body having a head and a neck interconnecting said head and said liquid passage portion, said neck being thinner than said head, said second valve body having a slit extending from a top surface of said head to said liquid passage space, said second valve body being made of an elastic material;

20 wherein when a tube is connected to said first female joint port, said first valve body is deformed to open the slit of said first valve body to bring an interior of the tube and an interior of said male joint member into fluid communication with each other through the slit of said first valve body and said liquid passage space; and

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when a tube is connected to said second female joint port, said second valve body is deformed to open the slit of said second valve body to bring an interior of the tube and the interior of said male joint member into fluid communication with each other through the slit of said second valve body and said liquid passage space.

2. A connector according to claim 1, wherein said first female joint port or said second female joint port and said male joint member have respective central lines extending substantially parallel to each other.

3. A connector according to claim 1 or 2, wherein said liquid passage portion, said first valve body, and said second valve body are integrally formed with each other.

4. A connector according to claim 1 or 2, wherein at least one of said first female joint port and said second female joint port is movable in the direction of a central line thereof relatively to the corresponding valve body.

5. A connector comprising:
a tubular male joint member;
a liquid passage portion having a liquid passage space defined therein in fluid communication with an interior of said male joint member;
a first female joint port and a second female joint

port which are capable of receiving a tube;

a first valve body disposed in said first female joint port and made of an elastic material, said first valve body having a slit; and

5 a second valve body disposed in said second female joint port and made of an elastic material, said second valve body having a slit;

10 the central line of said first female joint port and the central line of said second female joint port are skew lines;

15 wherein when a tube is connected to said first female joint port, said first valve body is deformed to open the slit of said first valve body to bring an interior of the tube and an interior of said male joint member into fluid communication with each other through the slit of said first valve body; and

20 when a tube is connected to said second female joint port, said second valve body is deformed to open the slit of said second valve body to bring an interior of the tube and the interior of said male joint member into fluid communication with each other through the slit of said second valve body.

25 6. A connector according to claim 5, wherein said first female joint port is movable in the direction of the central line thereof relatively to said first valve body, and said second female joint port is movable in the direction of the

central line thereof relatively to said second valve body.

7. A connector comprising:

a tubular male joint member;

5 a liquid passage portion having a liquid passage space defined therein in fluid communication with an interior of said male joint member;

10 a valve body disposed fixedly with respect to said male joint member and having a head and a neck interconnecting said head and said liquid passage portion, said neck being thinner than said head, said valve body having a slit extending from a top surface of said head to said liquid passage space, said valve body being made of an elastic material; and

15 a housing having a female joint port capable of receiving a tube, said housing being movable in the direction of a central line of said female joint port with respect to said valve body and said male joint member, said housing accommodating said valve body therein;

20 wherein when a tube is inserted into and connected to said female joint port, the tube presses said valve body to move said valve body and said male joint member with respect to said housing, and to deform said valve body to open said slit, bringing an interior of the tube and an interior of
25 said male joint member into fluid communication with each other through said slit and said liquid passage space.

8. A connector according to claim 7, wherein said housing has a tapered portion disposed behind said female joint port and having an inside diameter along the width of said slit, said inside diameter being progressively reduced into said female joint port, and when the tube is connected to said female joint port, the tube presses said valve body to move said valve body into said tapered portion, so that said valve body is pressed and deformed along the width of said slit directly or indirectly by a tapered surface of said tapered portion, thereby opening said slit.

9. A connector according to claim 7 or 8, further comprising:

a support member disposed fixedly with respect to said male joint member and supporting said head of said valve body from said neck;

said housing having a tapered portion disposed behind said female joint port and having an inside diameter along the width of said slit, said inside diameter being progressively reduced into said female joint port;

wherein when the tube is connected to said female joint port, the tube presses said valve body to move said valve body together with said support member into said tapered portion, so that said head of said valve body is pressed and deformed along the width of said slit directly by a tapered surface of said tapered portion, and the neck of said valve body is pressed and deformed along the width of said slit by

said tapered surface indirectly through said support member, thereby opening said slit.

10. A connector according to claim 7 or 8, further comprising:

urging means for urging said housing to return to an original position when the tube is removed from said female joint port.

11. A connector according to claim 1, 2, 5, 6, 7, or 8, wherein said fluid passage space is of a shape for preventing a liquid from being trapped therein when the liquid flows in said liquid passage space.